

AMENDMENTS TO THE CLAIMS

1-25. (Cancelled)

26. (Currently amended) A subassembly comprising:

a supporting substrate having a groove at which a member is disposed;

a light emitting element mounted at said supporting substrate and operable to emit light with a first wavelength;

a lens element including a lens portion formed at a surface of an optical substrate and a projection portion that comes in contact with said groove at said supporting substrate when said lens element is mounted, said lens element being positioned relative to said light emitting element and being operable to convert divergent light emitted from said light emitting element to substantially parallel light, and said projection portion supporting an external edge of said lens portion and being disposed between said groove and the external edge of said lens portion when said lens element is mounted;

a wavelength dividing filter mounted at said supporting substrate and operable to divide light into different wavelengths; and

a light receiving element at which light with a second wavelength having been divided through said wavelength dividing filter enters.

27. (Previously presented) A subassembly according to claim 26, wherein said lens portion is constituted of a diffractive optical element.

28. (Previously presented) A subassembly according to claim 26, wherein said optical substrate is a silicon crystal substrate.

29. (Currently amended) An optical module comprising:

a supporting substrate having a groove at which a member is disposed;

a light emitting element mounted at said supporting substrate and operable to emit light with a first wavelength;

a first lens element including a lens portion formed at a surface of an optical substrate and a projection portion that comes in contact with said groove when said first

lens element is mounted, said first lens element being positioned relative to said light emitting element and being operable to convert divergent light emitted from said light emitting element to substantially parallel light, and said projection portion supporting an external edge of said lens portion and being disposed between said groove and the external edge of said lens portion when said lens element is mounted;

a wavelength dividing filter disposed at said supporting substrate and operable to divide light into different wavelengths;

a light receiving element at which light with a second wavelength having been divided through said wavelength dividing filter enters;

one or more package components used to package said supporting substrate having said light emitting element, said first lens element, and said wavelength dividing filter mounted thereat and said light receiving element;

a second lens element operable to convert the substantially parallel light to convergent light; and

an interface including an optical fiber at which the light with the first wavelength having been converted to convergent light enters and the light with the second wavelength exits toward said second lens element, said interface being positioned as said interface comes in contact with said package component.

30. (Previously presented) An optical module according to claim 29, wherein said one or more package components and said second lens element form an airtight space, and said supporting substrate and said light receiving element are held in the airtight space.

31. (Previously presented) An optical module according to claim 29, wherein said one or more package components are coaxial package components.

32. (Currently amended) A subassembly comprising:

a supporting substrate having a first groove and a second groove both adopting a first structure and a third groove adopting a second structure, said third groove being positioned between said first groove and said second groove adopting the first structure;

a light emitting element mounted at said supporting substrate and operable to emit light with a first wavelength;

a first lens element including a first lens portion formed at a surface of an optical substrate and a first projection portion that comes in contact with said first groove adopting the first structure when said first lens element is mounted, said first lens element being positioned relative to said light emitting element and being operable to convert divergent light emitted from said light emitting element to substantially parallel light, and said first projection portion supporting an external edge of said first lens portion and being disposed between said first groove and the external edge of said first lens portion when said first lens element is mounted;

a second lens element including a second lens portion formed at a surface of an optical substrate and a second projection portion that comes in contact with said second groove adopting the first structure when said second lens element is mounted, said second lens element being operable to convert the substantially parallel light to convergent light;

a wavelength dividing filter disposed at said third groove adopting the second structure and being operable to divide light into different wavelengths; and

a light receiving element at which light with a second wavelength having been divided through said wavelength dividing filter enters.

33. (Previously presented) A subassembly according to claim 32, wherein said first and second lens portions are constituted of a diffractive optical element.

34. (Previously presented) A subassembly according to claim 32, wherein the optical substrate is a silicon crystal substrate.

35. (Currently amended) An optical module comprising:

a supporting substrate having a first groove and a second groove both adopting a first structure and a third groove adopting a second structure, said third groove being positioned between said first groove and said second groove adopting the first structure;

a light emitting element mounted at said supporting substrate and operable to emit light with a first wavelength;

a first lens element including a first lens portion formed at a surface of an optical substrate and a first projection portion that comes in contact with said first groove adopting the first structure when said first lens element is mounted, said first lens element being positioned relative to said light emitting element and being operable to convert divergent light emitted from said light emitting element to substantially parallel light, and said first projection portion supporting an external edge of said first lens portion and being disposed between said first groove and the external edge of said first lens portion when said first lens element is mounted;

a second lens element including a second lens portion formed at a surface of an optical substrate and a second projection portion that comes in contact with said second groove adopting the first structure when said second lens element is mounted, said second lens element being operable to convert the substantially parallel light to convergent light;

a wavelength dividing filter disposed at said third groove adopting the second structure and being operable to divide light into different wavelengths;

a light receiving element at which light with a second wavelength having been divided through said wavelength dividing filter enters;

one or more package components used to package said supporting substrate having said light emitting element, said first lens element, said second lens element and said wavelength dividing filter mounted thereat and said light receiving element; and

an interface including an optical fiber at which light with the first wavelength having been converted to convergent light enters and light with the second wavelength exits toward said second lens element, said interface being positioned as said interface comes in contact with said package component.

36. (Previously presented) An optical module according to claim 35, wherein said supporting substrate and said light receiving element are held in an airtight space formed by said package components.

37. (Previously presented) An optical module according to claim 35, wherein said one or more package components are coaxial package components.

38. (Previously presented) A subassembly according to claim 26, wherein said lens element is not a ball lens.

39. (Previously presented) A subassembly according to claim 26, wherein said lens element includes a rectangular handling portion extending in a direction orthogonal to a direction in which said groove extends.

40. (Previously presented) A subassembly according to claim 26, wherein said lens portion of said lens element is operable to cause a light flux to exit therefrom in a direction which is different from the direction of an incident light flux emitted from said light emitting element.

41. (Previously presented) A subassembly according to claim 26, wherein said projection portion is operable to be placed in contact with said groove so as to align an optical axis of said lens portion with an optical axis of said light emitting element.

42. (Previously presented) An optical module according to claim 29, wherein said first lens element is not a ball lens.

43. (Previously presented) An optical module according to claim 29, wherein said first lens element includes a rectangular handling portion extending in a direction orthogonal to a direction in which said groove extends.

44. (Previously presented) An optical module according to claim 29, wherein said lens portion of said first lens element is operable to cause a light flux to exit therefrom in a direction which is different from the direction of an incident light flux emitted from said light emitting element.

45. (Previously presented) An optical module according to claim 29, wherein said projection portion is operable to be placed in contact with said groove so as to align an optical axis of said lens portion with an optical axis of said light emitting element.

46. (Previously presented) A subassembly according to claim 32, wherein said first and second lens elements are not ball lenses.

47. (Previously presented) A subassembly according to claim 32, wherein said first and second lens elements each include a rectangular handling portion extending in a direction orthogonal to a direction in which said first and second grooves adopting the first structure extend.

48. (Previously presented) A subassembly according to claim 32, wherein said first lens portion of said first lens element is operable to cause a light flux to enter therefrom in a direction which is different from the direction of an incident light flux emitted from said light emitting element.

49. (Previously presented) A subassembly according to claim 32, wherein said first projection portion of said first lens element and said second projection portion of said second lens element are operable to be placed in contact with said first and second grooves, respectively, so as to align an optical axis of each of said first lens portion and said second lens portion with an optical axis of said light emitting element.

50. (Previously presented) An optical module according to claim 35, wherein said first and second lens elements are not ball lenses.

51. (Previously presented) An optical module according to claim 35, wherein said first and second lens elements each include a rectangular handling portion extending in a direction orthogonal to a direction in which said first and second grooves adopting the first structure extend.

52. (Previously presented) An optical module according to claim 35, wherein said first lens portion of said first lens element is operable to cause a light flux to enter therefrom in a direction which is different from the direction of an incident light flux emitted from said light emitting element.

53. (Previously presented) An optical module according to claim 35, wherein said first projection portion of said first lens element and said second projection portion of said second lens element are operable to be placed in contact with said first and second grooves, respectively, so as to align an optical axis of each of said first lens portion and said second lens portion with an optical axis of said light emitting element.

54. (New) A subassembly according to claim 32, wherein said second projection portion is arranged to support an external edge of said second lens portion and is disposed between said second groove and the external edge of said second lens portion when said lens element is mounted.

55. (New) An optical module according to claim 35, wherein said second projection portion is arranged to support an external edge of said second lens portion and is disposed between said second groove and the external edge of said second lens portion when said lens element is mounted.